Covered Source Permit No. 0249-02-C Review
Application for Significant Modification No. 0249-07

Applicant: Maui Pineapple Company, Ltd.

Equipment Description:

The only change to the equipment description, which is actually a clarification, is that boilers nos. 5 and 6 are vented to the same stack. No changes have been made.

Unit No.	Description
5	One (1) 28,000 lb/hr boiler (1954 Foster Wheeler, model B-5313, serial no. 4683, max. heat input 36.7 MMBtu/hr);
6	One (1) 28,000 lb/hr boiler (1954 Foster Wheeler, model B-5312, serial no. 5151, max. heat input 36.7 MMBtu/hr); and
7, 8	Two (2) 40,000 lb/hr boilers (1979 Cleaver Brooks, model DL-52E, serial nos. WL2952 and WL2951 max. heat input 47.5 MMBtu/hr)

Equipment Location:

No change from application no. 0249-06 review.

Responsible Official:

No change from application no. 0249-06 review.

Point of Contact:

No change from application no. 0249-06 review.

Consultant:

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No change from application no. 0249-06 review.

Proposed Project:

The Standard Industrial Classification Code (SICC) is 2033 - Canned Fruits, Vegetables, Preserves, Jams, and Jellies.

The proposed modification includes the addition of cooking oil as an allowable fuel for the four (4) boilers. The requested limit is 2 million gal/yr which is consistent with the current fuel limit for fuel oil no. 2, spec used oil, or combination thereof for the four (4) boilers. Cooking oil is considered a renewable energy since it is collected waste from restaurants and other business. The waste cooking oil would otherwise be disposed of in landfills.

This review for a Significant Modification to a Covered Source is based on the application dated 8/17/04 and revisions dated 9/10/04. A receipt for the application filing fee of $1,000.00 will be issued with the permit.

Applicable Requirements:

40 CFR Part 52.21 - Prevention of Significant Deterioration of Air Quality (PSD) is applicable to the DEGs according to the previous terms and conditions that were a part of PSD No. HI 87-02. A new PSD review is not applicable because there is no major modification pursuant to 40 CFR §52.21(b)(2)(i), meaning there will not be a significant net increase in emissions of any pollutant subject to regulation under the Clean Air Act.

No change from application no. 0249-06 review.

Non-Applicable Requirements:

A Best Available Control Technology (BACT) analysis is required for new sources or modifications to existing sources that would result in a net significant emissions increase as defined in HAR, Section 11-60.1-1. The potential increase in air pollutant emissions for this proposed modification will be lower than significant levels. Therefore, a BACT analysis was not performed.

No change from application no. 0249-06 review.

Insignificant Activities/Exemptions:

No change from application no. 0249-06 review.

Alternative Operating Scenarios:

No change from application no. 0249-06 review.

Project Emissions:

A comparison (netting evaluation) was made between the average actual air pollutant emissions for the past 2 years versus the new maximum potential air pollutant emissions for all four (4) boilers for which the modification is proposed. Although there were three (3) previous modifications since 2000 which involved switching fuels and replacing boilers, all of the modifications (including this one) are considered separate projects. In other words the applicant was not trying to circumvent the rules with smaller increases of emissions. Furthermore, the total emissions due to the modification is less than significant levels. Therefore netting was not required.

The diesel engine generators (DEGs) were not evaluated because they were not affected by the proposed modification.

Boilers

US EPA AP-42 emission factors section 1.3, dated 9/98 were used for fuel oil no. 2 and HC&S cooking oil source performance test in 10/02 were used for cooking oil. To maintain the total fuel limit of 2,000,000 gal/yr that is currently in the permit, the applicant proposed a 2,000,000 gal/yr limit of cooking oil.

TABLE 1
NETTING COMPARISON

POLLUTANT	2002-2003 AVERAGE [1] (TPY)	PROPOSED COOKING OIL [2] (TPY)	INCREASE (+) DECREASE (-) (TPY)	SIGNIFICANT LEVELS (TPY)
SO_2	53.4	0.01	-53.4	40
NO_x	8.1	18.08	10.0	40
CO	1.1	9.09	8.0	100
PM	16.2	4.45	-11.8	25
PM_{10}	14.0	4.45	-9.6	15
VOC	0.5	0.94	0.4	40
HAPs	0.246	n/d	-0.246	n/a

Notes:
1. Includes actual emissions based on fuel use and AP-42 emission factors.
2. Includes 2,000,000 gal/yr of cooking oil and emission factors based on HC&S source test using cooking oil. Hazardous air pollutants (HAPs) were not detectable.

For details, refer to the calculations section of the application.

Ambient Air Quality Assessment:

An ambient air quality assessment (AAQA) was conducted for the modification as discussed in the **Proposed Project** section to ensure compliance with state and national ambient air quality standards (SAAQS and NAAQS). Therefore, the AAQA included air pollutant concentrations from all four (4) boilers using cooking oil plus background concentrations only. Since NO_x and CO are the only pollutants that have potential increases that need to be assessed, SO_2 and PM_{10} concentrations were excluded. The model (ISCST3, version 7.10), methodology and assumptions employed in the AAQA have been determined to be consistent with State and Federal guidelines and are discussed below.

The regulatory default options used were final plume rise, stack-tip downwash, buoyancy-induced dispersion, and calm processing routine.

A preprocessed meteorological data base was used for input into the model. Since there was no recent meteorological data for Maui that was processed and approved by the Department, SCREEN2.ASC data was used. This data does not cover a full year, therefore only one hour concentrations were calculated by the model. State factors to determine the concentrations for the respective averaging periods were used. This is conservative since the highest one hour concentrations were used for the other averaging periods.

A discrete Cartesian receptor grid was used to determine the locations of maximum impact. A grid of 30 meter spacing was generated from USGS DEM data for the Wailuku quadrangle.

A Good Engineering Practice (GEP) stack height analysis was performed using the dimensions of all nearby structures and buildings within the fence line (i.e., height, width, length, and distance to stack). For this application, the EPA Building Profile Input Program (BPIP) was used to derive the direction specific building dimensions for importing into the model. Wake effects are treated in the model by including direction specific building dimensions for each emission source.

TABLE 2 presents the proposed potential to emit/allowable emission rates and stack parameters of the boilers used in the AAQA. The derivation of NO_x and CO emission rates were previously discussed in the **Project Emissions** subsection.

The predicted concentrations presented in **TABLE 3** conservatively assumed that all four (4) boilers operated simultaneously at maximum potential with a 2 million gal/yr limit of cooking oil. NO_x was assumed to equal NO_2 concentrations. Based on these assumptions, the facility shows compliance with SAAQS and NAAQS for NO_2 and CO. No results were provided for Pb and H_2S because it was assumed to be negligible.

TABLE 2
SOURCE EMISSION RATES AND STACK PARAMETERS

SOURCE		EMISSION RATES [1, 2]					STACK PARAMETERS			
Equipment	Stack No.	SO_2 (g/s)	NO_x (g/s)	CO (g/s)	PM_{10} (g/s)	Pb (g/s)	Height (m)	Temp. (K)	Velocity (m/s)	Diameter (m)
Boiler unit no. 5	5		1.351	0.679			22.9	599.3	5.81	1.79
Boiler unit no. 6			1.351	0.679						
Boiler unit no. 7	6		0.874	0.440			22.9	577.0	20.02	0.76
Boiler unit no. 8	7		0.874	0.440			22.9	577.0	20.02	0.76

Note:
1. DEG unit nos. 1-4 were not included since they are existing and non-modified.
2. Only NO_x and CO have potential increases.

TABLE 3
PREDICTED AMBIENT AIR QUALITY IMPACTS

AIR POLLUTANT	AVERAGING TIME [1]	IMPACT ($\mu g/m^3$)	BACKGROUND [2] ($\mu g/m^3$)	TOTAL IMPACT ($\mu g/m^3$)	AIR STANDARD ($\mu g/m^3$)	PERCENT STANDARD	IMPACT LOCATION (m,m) [3]
SO_2	3-Hour			0	1300	0%	
	24-Hour			0	365	0%	
	Annual			0	80	0%	
NO_2	Annual [4]	9.6	10	20	70	28%	762292, 2311418
CO	1-Hour	32	3990	4022	10000	40%	762292, 2311418
	8-Hour	23	1582	1605	5000	32%	762292, 2311418
PM_{10}	24-Hour			0	150	0%	
	Annual			0	50	0%	
Pb	Calendar Quarter[5]	--	--	--	1.5	0%	
H_2S	1-Hour [5]	--	--	--	35	--	--

Note:
1. State factors were multiplied with the one hour concentrations for the respective averaging periods (0.9 for 3-hr; 0.7 for 8-hr; 0.4 for 24-hr; and 0.2 for annual).
2. Background concentrations were taken from the 'Annual Summary Hawaii Air Quality Data 2002'. Only PM_{10} is measured on Maui, therefore other data were taken from Oahu.
3. (m,m) = Location (UTM coordinates) meters east, meters north.
4. NO_2 = NO_x concentrations.
5. Pb and H_2S emissions were assumed to be negligible.

Other Issues:

None.

Significant New Permit Conditions:

1. Addition of cooking oil as a potential source of fuel for the boilers. The total combined fuel limit for all fuel oil no. 2, specification used oil, and cooking oil will continue to be 2,000,000 gallons per 12-month basis.
2. Standard cooking oil conditions.

Conclusion and Recommendation:

In conclusion, it is the Department of Health's preliminary determination that the facility will comply with all State and Federal laws, rules, regulations, and standards with regards to air pollution. Therefore, a significant modification to CSP No. 0249-02-C for Maui Pineapple Company is recommended based on the information provided in the air permit application and subject to the following:

1. Above special permit conditions;
2. 30-day public review period; and
3. 45-day EPA review period.